NON-PUBLIC?: N
ACCESSION #: 9105070232
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Prairie Island Nuclear Generating Plant PAGE: 1 OF 03
Unit 1

DOCKET NUMBER: 05000282

TITLE: Unit 1 Reactor Trip Resulting From Loss of One Reactor Coolant Pump Due to Personnel Error
EVENT DATE: 07/21/89 LER #: 89-010-01 REPORT DATE: 05/03/91

OTHER FACILITIES INVOLVED: Prairie Island Unit 2 DOCKET NO: 05000306

OPERATING MODE: N POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
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COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On July 21, 1989 Unit 1 was at 100% power. During the afternoon, a "hot lacquer" smell was noticed coming from 4160V Bus 11. 4160V Bus 11 supplies No. 11 Reactor Coolant Pump and No. 11 Feedwater Pump. The problem was investigated and determined to be of no immediate concern but worthy of increased awareness. An "Operations Note" was issued to alert operators of the problem. During a subsequent investigation for the source of the smell, an operator pulled open the potential fuse drawer for 4160V Bus 11, causing undervoltage relays to trip. After a 5 second time delay timed out, the breaker for No. 11 Reactor Coolant Pump tripped and the reactor tripped at 2345 on July 21, 1989 due to single loop loss of flow reactor trip signal. The unit was returned to service at 2204 on July 22, 1989.

4160V Bus doors have been labeled, cautioning personnel of the

consequences of opening the potential fuse drawers. Potential fuse drawer fronts will also be labeled.

END OF ABSTRACT

EVENT DESCRIPTION

On July 21, 1989 Unit 1 was at 100% power. During the afternoon, a "hot lacquer" smell was noticed coming from 4160V Bus 11 (EIIS Identifier BU). 4160V Bus 11 supplies No. 11 Reactor Coolant Pump and No. 11 Main Feedwater Pump. The problem was investigated and determined to be of no immediate concern, but worthy of increased awareness. An "Operations Note" was issued to alert operators of the problem.

In response to guidance in the Operations Note, the shift manager from the next shift and an operator proceeded to 4160V Bus 11 to familiarize themselves with the hot lacquer smell so that they could judge whether the problem was worsening over the course of the shift. While at the bus, the shift manager and the operator also continued to investigate the source of the smell. Under the shift manager's tacit direction, the operator pulled open the potential fuse drawer for Bus 11. The opening of the potential fuse drawer de-energized undervoltage relays associated with the No. 11 Reactor Coolant Pump. After a 5 second time delay timed out, the breaker (EIIS Identifier BKR) for No. 11 Reactor Coolant Pump tripped. The opening of the Reactor Coolant Pump breaker actuated the single loop loss of flow reactor trip and the reactor tripped at 2343 on July 21, 1989. All plant systems and components responded to the reactor trip as designed and the plant was stabilized in accordance with plant procedures.

Following the reactor trip the cause of the hot lacquer smell in 4160V Bus 11 was investigated. The investigation found that a galvanic reaction had occurred in a connection between copper and aluminum bus work feeding No. 11 Main Feedwater Pump. This reaction had caused increased resistance and heat generation in this connection. The elevated temperature of the connection was causing nearby electrical tape to deteriorate. The deterioration of the electrical tape was the source of the hot lacquer smell.

The connection which experienced the galvanic reaction was disassembled and thoroughly cleaned. During reassembly the connection was painted with a compound designed to prevent galvanic reactions between copper and aluminum.

The unit was returned to service at 2204 on July 22, 1989.

CAUSE OF THE EVENT

The cause of the event was personnel error. The potential fuse drawer for 4160V Bus 11 was opened without realizing the consequences of the action.

A contributing cause to the event was the use of aluminum bus work in 4160V Bus 11 and the galvanic reaction that resulted from its use.

ANALYSIS OF THE EVENT

Because the plant responded as designed to the loss of a reactor coolant pump, and because all plant safeguards equipment remained available for service throughout this event, there was no effect on the health and safety of the public.

This event is reportable pursuant to 10CFR50.73.(a)(2)(iv) since this was an unplanned actuation of the reactor protection system.

CORRECTIVE ACTION

Labels have been added to the doors of all 4160V Buses cautioning personnel of the consequences of opening the potential fuse drawers. Labels cautioning personnel of the results of opening the drawers will also be added to the potential fuse drawer fronts during the next refueling outage for each unit.

All aluminum bus work in contact with copper in 4160V buses will be replaced with copper during the next scheduled preventative maintenance of the buses.

PREVIOUS SIMILAR EVENTS

There have been no previous similar events at Prairie Island.

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